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EXAMINER	
MOORE, IAN N	
ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/839,509	STRUHSAKER ET AL.	
	Examiner	Art Unit	
	Ian N. Moore	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Clams 1, 2, 10, 12, and 20 are amended.

2. Claim rejection 35 USC § 112 second paragraph, on claims 2-9,12 and 17 are withdrawn since they are being amended accordingly.

3. Claims 1-20 are rejected by the new ground(s) of rejection necessitated by the amendment.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 10-13, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Dove (U.S. 6,091,729).

Regarding Claim 10, Dove discloses for use in association with devices such as processor and modems used in wireless and wireline access systems (see FIG. 3, broadband fiber shelf 3), a backplane (see FIG. 4, backplane 305 and FIG. 5, cell buses 550) comprising:

a higher tier that comprises one or more serial links (see FIG. 5, each cell bus/link 550 transmits cells serially, thus, each link/bus 550 is a serial link) that is capable of aggregate traffic rates of up to approximately twenty gigabits per second (see col. 4, lines 24-30; see col. 5, lines 16-20, 26-34, see col. 6, lines 10-19).

Regarding Claim 11, Dove discloses a higher tier bus (see FIG. 5, cell bus 550); and at least two switch matrix circuit boards (see FIG. 5, Two Cell Routing Unit CRU 220; see FIG. 3, Two CRU 220) coupled to said high tier bus (see col. 5, lines 41-35; see col. 7, lines 33-65).

Regarding Claim 12, Dove discloses high speed serial links (see FIG. 2, plurality of cell bus links 550; and see FIG. 9, cell Bus A and B) coupled to said at least two switch matrix circuit board cads (see FIG. 2, CRU 220) and coupled to any other circuit board cards capable of sending and receiving high speed data traffic (see FIG. 2, OLU 230); see col. 6, lines 40-67; see col. 7, lines 5-32; see col. 10, lines 61 to col. 12, lines 12)

Regarding Claim 13, Dove discloses point-to-point serial links (see FIG. 9, cell Bus A and B) comprising differential pairs for both a transmit path and receive path (see col. 6, lines 30 to col. 7, lines 3; see col. 10, lines 61 to col. 12, lines 12; note that each link must have a transmit and receive pair).

Regarding Claim 17, Dove discloses at least two (2) high speed serial links (see FIG. 5, Cell clock 530 and cell sync 540; see FIG. 10, links between LIU 230 and ABIUs) for each interface control processor slot (see FIG. 5 and FIG. 2, AFIU

240) in said backplane (see col. 6, lines 5-67; see col. 5, lines 35-55; see col. 12, lines 12-30).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manchester (U.S. 6,760,327) in view of Tabu (U.S. 6,560,219).

Regarding Claim 1, Manchester discloses for use in association with devices such as processors and modems used in wireless and wireline access systems (see FIG. 2, Access Node 14), a backplane (see FIG. 3, Backplane 46) comprising:

a low tier that comprises a cell-based bus (see FIG. 3, TSB 70 that connects to ATM switch 66) capable of aggregate traffic rates of up to approximately a hundred megabit per second (see col. 8, lines 19-24; see col. 7, lines 45-65); and

a high tier that comprises one ore more serial links (see FIG. 3, HAS 72 bus contains one or more point-to-point serial links 76; see col. 8, lines 42-50) capable of aggregate traffic rates of up to approximately one gigabits per second (see col. 8, lines 19-25; see col. 7, lines 45-65)

Manchester does not explicitly disclose approximately two and twenty gigabits per second. However, Tabu teaches a low tier (see FIG. 7, cell switch 2100)

aggregate traffic rates of up to approximately two gigabit per second (see col. 9, lines 65-67) and a high tier (see FIG. 7, cell switch 1100) that is capable of aggregate traffic rates of up to approximately twenty gigabits per second (see col. 9, lines 43-54). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide switches with approximately two gigabit per second and twenty gigabit per second, as taught by Tabu in the system of Manchester, so that it would provide a hybrid data exchange between different rates and systems, and accommodate in exchanging subscriber data between different rate switches; see Tabu col. 10, line 19-35, see col. 2, lines 60 to col. 3, lines 45.

Regarding Claim 2, Manchester discloses a low tier bus (see FIG. 3, TSB bus 70) comprising a switching architecture (see FIG. 3, switch core 44) that (1) allows a circuit board card on an input side of a connection (see FIG. 3, input of Line card 1) to transmit data to a circuit board card (see FIG. 3, Line card 2) on an output side of said connection (see FIG. 3, output from switch core 44), and that (2) allows a circuit board card on an output side of a connection (see FIG. 3, Line card 2) to receive data from a circuit board on the input side of said connection (see FIG. 3, receive output data from switch core 44; see col. 7, lines 39 to col. 8, lines 42).

Regarding Claim 3, Manchester discloses wherein said low tier bus supports one of packet based traffic, unicast traffic, multicast traffic, and broadcast traffic (see col. 8, lines 20-31, and see col. 6, lines 29-55). Tabu also discloses packet based traffic (see col. 10, lines 1-6).

Regarding Claim 4, Tabu discloses wherein said low tier bus supports asynchronous transfer mode traffic (see col. 10, lines 1-9). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide medium cell switch which process ATM traffic, as taught by Tabu in the system of Manchester, for the same motivation as described above in claim 1.

Regarding Claim 20, Manchester discloses a device (see FIG. 2, Access Node 14) comprising a backplane (see FIG. 3, Backplane 46) comprising:

a low tier that comprises a cell-based bus (see FIG. 3, TSB 70 that connects to ATM switch 66) capable of aggregate traffic rates of up to approximately a hundred megabit per second (see col. 8, lines 19-24; see col. 7, lines 45-65); and

a high tier that comprises one ore more serial links (see FIG. 3, HAS 72 bus contains one or more point-to-point serial links 76; see col. 8, lines 42-50) capable of aggregate traffic rates of up to approximately one gigabits per second (see col. 8, lines 19-25; see col. 7, lines 45-65)

wherein said device comprises one of: an access process unit (see FIG. 29-30, Controller 652), a modem unit, and a combined access processor and modem unit (see col. 30, lines 25-35, see col. 31, lines 30-44).

Manchester does not explicitly disclose approximately two and twenty gigabits per second. However, Tabu teaches a low tier (see FIG. 7, cell switch 2100) aggregate traffic rates of up to approximately two gigabit per second (see col. 9, lines 65-67) and a high tier (see FIG. 7, cell switch 1100) that is capable of aggregate traffic rates of up to approximately twenty gigabits per second (see col. 9,

lines 43-51), and access process unit (see FIG. 4, controller CC 150; see col. 7, lines 9-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a switches with approximately two gigabit per second and twenty gigabit per second, as taught by Tabu in the system of Manchester, so that it would provide a hybrid data exchange between different rates and systems, and accommodate in exchanging subscriber data between different rate switches; see Tabu col. 10, line 19-35, see col. 2, lines 60 to col. 3, lines 45.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manchester in view of Tabu as applied to claims 1,2,4 above, and further in view of Chui (U.S. 6,512,769).

Regarding Claim 5, Manchester in view of Tabu discloses all of limitation as recited in claims 1,2,4 above. Neither Manchester nor Tabu explicitly discloses wraps asynchronous transfer mode cells with a header to allow to switch cell based traffic according to the connection map. However, Chui discloses a lower tier bus (see FIG. 6, cell BUS) wraps asynchronous transfer mode cells with a header (see FIG. 9, ATM cell is encapsulated with cell bus header byte; see col. 8, lines 1-6) to allow to said lower tier bus to switch cell based traffic according to the connection map (see FIG. 24-25, connection address map RAM data) on each circuit board card (see FIG. 6; cards 606-608,610-612) connected to said low tier bus (see col. 5, lines 60 to col. 6, lines 67; see col. 14, lines 30-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to encapsulate the ATM cell into a cell bus frame in order to switch between the cards by utilizing the cell bus, as taught by Chui, in the combined system of Manchester and Tabu, so that it would provide fair rate-based cell traffic arbitration and provide flexibility and a performance improvement in the translation of cell routing information; see Chui col. 2, lines 40-65.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manchester and Tabu as applied to claims 1,2,4 above, and further in view of Lentz (U.S. 6,047,348).

Regarding Claim 6, Manchester discloses said lower tier bus comprises two (2) parallel buses (see FIG. 3, 2 TSB buses). Neither Manchester nor Tabu explicitly discloses a thirty two (32) bit data path. However, a data bus having 32 bit data path is well known in the art. In particular, Lentz discloses a data bus having 32 bit data path (see FIG. 1, 32 bits data bus; see abstract, col. 2, lines 5-15; see col. 3, lines 10-15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide 32 bit data bus, as taught by Lentz, in the combined system of Manchester and Tabu, so that it would provide a flexible frame word for low end products; see Lentz col. 2, line 5-40.

10. Claim 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manchester in view of Tabu.

Regarding Claim 7, Manchester discloses lower tier bus clock rate (see col. 8, lines 19-25; see col. 8, lines 50-65) equal to on half of a clock of said backplane (see col. 8, lines 19-50; see col. 9, lines 40-55, see col. 32, lines 45; it is inherent that low priority bus clock/data rate must be at least half of the clock/data rate of the entire backplane).

Regarding Claim 8, neither Manchester nor Tabu explicitly discloses clock rate 32.768 MHz. Manchester discloses a clock/data rate of 30 Mbps or 30 MHz. Setting clock rate to 32.768 MHz does not define a patentable distinct invention over that in the combined system of Manchester and Tabu, since both the invention as a whole and the combined system of Manchester and Tabu are directed to setting low clock/data rate for low speed traffic and setting high clock/data rate for high speed traffic. The degree in which determining clock rate presents no new or unexpected results, so long as the low and high-speed traffic is switched via appropriate buses. If one has less clock rate, it will be used for low speed traffic, and if one has number clock rate, it will be used for high speed traffic. Therefore, to have clock rate of 32.768 that at low speed bus would have been routine experimentation and optimization in the absence of criticality.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manchester and Tabu, as applied to claim 1 and 2 above, and further in view of Pajowski (U.S. 5,355,090).

Regarding Claim 9, Neither Manchester nor Tabu explicitly discloses a redundant clock reference. However, having a redundant clock reference is well known in the art. Pajowski discloses a redundant clock reference (see FIG. 1, see abstract; col. 2, lines 44-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a redundant clock system, as taught by Pajowski, in the combined system of Manchester and Tabu, so that it would over timing problems by reducing timing errors; see Pajowski col. 2, line 5-40.

12. Claim 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dove.

Regarding Claim 14, Dove discloses high speed serial links operate at a clock rate equal to a clock of said backplane (see col. 4, lines 20-30; see col. 5, lines 15-35).

Regarding Claim 15, Dove does not explicitly discloses clock rate 65.536 MHz. Dove discloses a clock rate of 100 MHz. Setting clock rate to 65.536 MHz does not define a patentable distinct invention over that in the system of Dove, since both the invention as a whole and the system of Dove is directed to setting maximum cell bus clock rate to 100 MHz in order to support aggregate bandwidth of switching fabric of up to 20Gbps. The degree in which determining clock rate presents no new or unexpected results, so long as the traffic can be switched up to 20Gbps. Therefore, to set clock rate of 65.536 MHz would have been routine experimentation and optimization in the absence of criticality.

Regarding Claim 16, Dove discloses a high speed serial link serial/de-serial device (see FIG. 5, CRU 220), high speed serial link encoding (see FIG. 5, CRU 220 and OLU 510) and high speed serial link clock rate (see col. 8, lines 19-41) as described above in claims 10-14. Dove does not explicitly disclose multiplying the clock rate by a factor of twenty and a link encoding 8Bit/10Bit. Multiplying the clock rate by 20 and setting ending to 8B/10B does not define a patentable distinct invention over that in the system of Dove, since the invention as a whole and the system of Dove is directed to meet the functional needs of the switch. The degree in which multiplying clock rate by twenty and setting encoding to 8B/10B presents no new or unexpected results, so long as the switch can perform and meet its functional needs. Therefore, to multiply the clock rate by twenty and setting the encoding 8B/10B would have been routine experimentation and optimization in the absence of criticality.

13. Claim 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manchester and Tabu, as applied to claim 1 and 2 above, and further in view of Panzarella (U.S. 5,416,776).

Regarding Claim 18, neither Manchester nor Tabu explicitly disclose one of a time division multiplex bus, a communication bus, a communication bus, a common control bus, and a joint Test Access Group test bus. However, implementing a common/control bus in the backplane is well known in the art. In particular, Panzarella discloses one of a time division multiplex bus (see FIG. 1,

TDM bus 201), a communication bus, a communication bus, a common control bus (see FIG. 1, Management bus 401), and a joint Test Access Group test bus (see col. 3, lines 60 to col. 4, lines 4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a backplane with common control bus and TDM bus, as taught by Panzarella, in the combined system of Manchester and Tabu, so that it would provide a backplane which capable of enabling high speed network communication among larger number of modems and related circuits and increasing the number of buses which offers distinct advantages for chassis requiring a substantial number of modems and related circuit boards; see Panzarella col. 1, line 20 to col. 2, lines 4.

Regarding Claim 19, Manchester discloses at least one set of clock and framing resources (see FIG. 2, line slots 56 and switch slots 54; see FIG. 3, input to ATM switch 66; see col. 7, lines 16-56; see col. 8, lines 5-50). Panzarella discloses at least one set of clock and framing resources (see col. 3, lines 5-14, 45-67 and see col. 4, lines 14-30).

Response to Arguments

14. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on M-F: 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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BOB PHUNKULH
PRIMARY EXAMINER